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ABSTRACT

An attempt was made to determine predictors of service need, use, and outcome among chronically impaired adults and aged who were living in the community and using the home-based, long term care services of the Chronic Illness Center (CIC) of the Cuyahoga County Hospitals (Ohio). Randomly selected consumer service records (N=200) were coded for the three client groups served by the CIC: chronically ill adults and aged, those in need of protective services, and caregivers. The usefulness of predisposing, need, and enabling variables for the prediction of service need, use, and outcome was examined by multiple regression analysis. Variables in the enabling category were found to be the best predictors of service need (personal security) and service use (personal and social resources). The need variable of physical health was the best predictor of service outcome. Data indicated the multidimensional vulnerability of chronically impaired adults and aged consumers of home-based, long term care services. The findings confirmed that the CIC's philosophy and organization of service delivery offer a viable model for provision of home-based long term care services. (NRB)

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Predictors of Home Based Long-Term Care Services

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ABSTRACT

This research ascertained predictors of service need and service use among 200 chronically impaired adults and aged utilizing home based long term care services. Participants in this research included three groups: those receiving protective services, chronically ill adults and aged, and caregivers. Findings from this research revealed the multidimensional impairment of these service consumers, represented by the high percentages of variance accounted for in predicting service need and service utilization by various configurations of the need and enabling variables. Monthly cost of service was $75 for caregivers, $112 for the chronically ill and $115 for those receiving protective services.

The research findings confirm that the philosophy and organization of service delivery of the Chronic Illness Center offer a viable approach for the provision of home based long-term care services.

Specific Aims of this Research

The major objective of this research was to ascertain predictors of service need, service utilization and service outcomes among chronically impaired adults and aged living in the community and utilizing home based long-term care services. Specifically, this research aimed to ascertain the relative importance of predisposing (socio-demographic and socio-economic) variables, need (physical health, mental health and functional competence) variables, and enabling (personal resources, personal security, and social resources) variables in the prediction of service need, service utilization, and service outcomes among chronically impaired adults and aged living in the community and utilizing home based long term care services.

There has been considerable interest in recent years in programs which provide home based and community based long term care services to chronically impaired adults and aged who may otherwise be candidates for institutionalization. In part, this interest, is based on efforts to reduce the high costs of institutional care and, in part, is based on a commitment to develop community based and home based alternatives to institutionalization for vulnerable older persons and chronically impaired adults.

This research focuses on the organizational efforts of the Chronic Illness Center, a unit of the Cuyahoga County Hospitals (Ohio), to serve the needs of frail and impaired aged and physically and mentally impaired adults of all ages living in the community. The efforts of the Chonic Illness Center to offer home based, quality long-term care services parallel efforts on the national, state and

local levels to plan and provide the most appropriate, least costly and most beneficial services to chronically impaired adults and aged.

The population served by the Chronic Illness Center is similiar to the target populations served by recent national demonstration projects, one sponsored by the U.S. Department of Health and Human Services (COMPASS project) and the second by the Robert Wood Johnson Foundation (PISCES project). For this reason, data from this research should be of interest and potential usefulness for funding agencies and human service professionals in the field of long term care at the local, state and national levels.

In general, there is agreement among public officials and human service professionals that long term care services should promote the attainment of the following objectives:

(a) target long term care services to those in greatest need and use public funds in the most efficient manner;

(b) provide individuals in need with appropriate, accessible, and efective care arrangements and offer them services which may enhance their well being and coping abilities;

(c) allow individuals utilizing long term care services as much mastery and discretion over their lives as possible; and

(d) encourage and support the development and expansion of care for chronically impaired adults and aged by family members, friends, neighbors and volunteers.

Public health practices and the implementation of modern health care technologies have made it possible for larger numbers of people to reach more advanced ages. Diseases, impairments and disabilities occur in higher frequencies in the higher age brackets, which make it necessary for older people to depend on others for their well-being. In fact, the dependency of the aged for their well being on organized arrangements has emerged as one of the more critical challanges facing our society.

Elderly individuals who have become partially or completely dependent need long term care services. Brody (1977) estimated that more than eight million people in the U.S. needed long term care services either in the the community or in institutions during the seventies. There are now more nursing home beds in the United States than there are general surgical beds (1/2 million vs. 1 million). It is estimated that somewhere between one in four and one in five Americans over 65 will enter a long-term care facility at some point in their lives (Brody, 1977). The demand for institutionally-based long-term care has increased dramatically in recent years. Though an effort is now being made to provide more adequate alternatives to institutionalization, the demand for institutional care will continue to be strong. As indicated in population reports, not only is growth in the elderly population outpacing that of the rest of the population, but the elderly population is itself getting older. It is projected that by 1990 forty percent of the more than 28 million elderly will be 75 years of age or older. By the year 2000, 25 percent of the elderly population will be over 80 years old, compared with 20 percent today. In 1900, four percent of the elderly

population was 85 years old or older. In 1975 the percentage of the population 85 and over was eight percent of the total population. By the year 2000 this same group will total over 11 percent of the total population (Brotman, 1971).

While most older Americans have a viable and functioning support system, this does not negate the role and importance of the formal system. Indeed, older persons and their family members, friends and neighbors do turn to formal organizations for assistance when the nature of their problems becomes too difficult for them to handle alone. Litwak (1965) suggested that while the functions of the two systems are different, the well-being of older persons is directly related to the degree of assistance they receive from both the formal and informal systems.

The interface between the services offered by service agencies and the assistance received from informal sources of support is of critical importance in assuring the physical, social, and psychological well-being of older persons. The informal system is more likely to provide emotional support and assistance with personal care and household management. The formal system of public and voluntary agencies provides the basic entitlements of health, housing, education, safety and transportation, as well as health and social services mandated under the Older Americans Act and the Social Security Act (Medicare, Medicaid, Title XX).

The review of the gerontological literature reveals a consistent effort on the part of human service organizations in the field of aging to develop community based alternatives for the

chronically impaired adults and aged. Options and alternatives have been explored, developed and implemented to meet the needs of frail and impaired aged and those of disabled persons of all ages. The range of options and alternatives include care and assistance provided in the service consumer's home (home-based), those provided by service agencies and geriatric service centers in the community (community-based), and those provided by nursing homes and home for the aged (institution-based). Service agencies in the State of Ohio have been in the forefront in developing options and alternatives to meet the needs of the impaired adults and aged in the most suitable and effective ways. The philosophy and service organization at the Chronic Illness Center evolved over the years as part of the efforts to provide comprehensive and responsive community based alternatives for chronically impaired adults and aged.

The Chronic Illness Center

The Chronic Illness Center serves the frail and impaired aged and chronically ill adults of all ages in Cuyahoga County. The configuration of advanced age, chronic health impairment, and limited economic resources places the Chronic Illness Center clients at a high risk in the community. The living situation of many of them is characterized by poor housing, deteriorated living environments, meager financial resources, and limited access to the benefits and services more generally available to the older population of Cuyahoga County. The Chronic Illness Center serves three types of client groups, the chronically ill adults and aged, those in need of protective services and caregivers. The Center has been providing services to this target population since 1969. The philosophy of the

Center emphasizes the inherent dignity and right of each individual to pursue a personal life style within the constraints of age, disability and illness. Each person is viewed to have a right to choose to remain in his or her own home, with essential services provided, as long as the situation does not become life threatening. Further, each individual is viewed to have the right to opportunities and experiences which are directed toward enhancing the quality of life. Individuals have a right to choose to die at home in spite of the anxiety provoking elements sometimes present there.

The Center employs a multidisciplinary approach. Staff members are assigned to and work in teams, headed by a coordinator (MSW). Team members include social workers, geriatric outreach workers and a nurse. All teams have access to medical, psychiatric and legal consultation as needed.

The service efforts of the Chronic Illness Center are directed towards enabling the client to remain in the community as long as is reasonable, thereby preventing unnecessary hospitalization and/or institutionalization. Treatment goals and treatment plans are based, not only on the identified characteristics and needs of the client, but also take into account the personal and social resources available to the client as well as community supports and resources. Services provided include assessment, counseling, health education, health monitoring, personal assistance and help with home management.

Method and Procedures

Two research questions were of primary interest to this analysis:

1. What is the service need, service utilization, service cost and service outcome among home based long-term care service consumers?
2. What is the configuration of predisposing, need and enabling variables which best predicts service need, service utilization and service outcomes among chronically impaired adults of all ages?

The conceptual framework developed for this research was based on theoretical and empirical perspectives prevalent in the health services research, gerontological literature and on the practice and planning experiences of the Chronic Illness Center. A significant number of studies on health service utilization indicate that need for health services is a function of three general classes of variables: (a) demographic characteristics or predisposing variables; (b) need variables (health status and functional competence) and (c) enabling variables such as social resources and economic resources (Anderson, R., Kravits, J., and Anderson, OW. 1975).

For these reasons, the conceptual framework employed in this research for the assessment of CIC service consumers includes the following three independent variable categories:

A. Predisposing (Socio-demographic and Socio-economic) Variables;
B. Need (Physical Health, Mental Health and Functional Competence) Variables; and
C. Enabling (Personal Security, Personal Resources, and Social Resources) Variables.

These three variable categories have considerable importance in clinical work as they provide the bases for decision-making by human service professionals regarding the service needs of clients.

There are three dependent service variable categories of interest to this research. These include:

D. Service Need (Presenting Problems and Request for Service) Variables;

E. Service Utilization (Service Hours and Service Cost) Variables; and

F. Service Outcome Variables.

The development and testing of the instrument used in this research is reported elsewhere (Harel, Wyatt & Luppens, 1984). The reliability coefficients (Chronbach's alpha) for the measures of mental health, functional competence, personal resources and social resources employed in this research ranged from 0.75 to 0.95.

Data Recording and Processing

The research methodology involved the coding of 200 randomly selected service consumer records. These included a cross-section of 100 service consumers who utilized services for three months or longer prior to October 1, 1982, and a cross-section of 100 service consumers who became service users between October 1, 1982, and September 31, 1983. Information from client records was processed and coded by senior staff and case managers and code-checked by administrative and research staff. The predictive utility of the predisposing, need and enabling variables for the prediciton of service need, service

utilization and service outcome was examined by multiple regression analyses.

Service Consumer Characteristics

The Chronic Illness Center serves physically and mentally impaired adults and aged ranging in age from 26 to 97, served in three groups, the chronically impaired, those in need of protective services, and informal caregivers. Chronically impaired adults and aged utilizing CIC services are predominantly female (71%); a substantial percentage (35%) among them are minorities; the majority of them (57%) reside in the City of Cleveland, less than one-half (47%) are married; and a high fraction (29%) lives alone. The disadvantaged socio-economic status of the CIC clientele is reflected by the fact that more than one-half (51%) do not have a high school education and that more than two-thirds are of semi-skilled (10%) and unskilled (60%) occupational background.

An overwhelming majority (78%) have a monthly income of less than $500 and about one-half of CIC service consumers perceive their income to be inadequate (28%) or fair (20%). The overwhelming majority of these service consumers depend on Social Security (68%) and/or disability benefits (23%) for their financial resources and a sizable fraction among them (24%) receive financial assistance from family members or close friends. More than one-fourth of CIC service consumers live in homes rated by CIC staff as poor or fair in quality and in neighborhoods with safety problems and with limitations in availability of transportation and shopping facilities. More than one-third of the clients utilize food stamps, rent subsidies and Title

XX Social Services. Those receiving protective services are somewhat more disadvantaged socially and economically than other CIC service consumers.

Predictors of Service Need

Service need was measured by the number of presenting problems and the number of requests for service given by individual clients. The predictive utility of the predisposing, need and enabling variable categories in the prediction of service need was examined by both categorical multiple regression analyses and by a hierarchical multiple regression analysis. Need variable categories (functional competence, physical health, and mental health) were entered individually into the regression equation, followed by the enabling variable categories (social resources, personal resources and personal security) in the hierarchical multiple regression analysis. The predisposing variables (demographic) were entered last. This procedure was used because, in the assessment phase of service delivery, functional limitations are ascertained first, followed by an evaluation of the extent to which physical health and mental health impairments are present and contribute to the person's overall state of impairment. An assessment of the extent to which enabling variables in the form of personal security, personal resources and social resources are present to reduce the person's state of vulnerability follows.

Personal security variables were most consistent in predicting service need, accounting for 28% explained variance in presenting problems and requests for service. The need variable categories of

functional limitations and physical health were strong predictors of presenting problems (35% variance and 33% variance accounted for, respectively), as were the enabling variables of social resources (27% variance) and personal resources (26% variance). In general, the need and enabling variable categories were less predictive of requests for service, accounting for 15% variance (functional limitations), 20% variance (physical health), 21% variance (mental health) and 13% variance (social resources).

The predisposing variable category accounted for 11% variance in predicting both the number of presenting problems and requests for service.

When the physical health category was added to the functional competence measures in the hierarchical multiple regression analysis, the total variance accounted for in the prediction of presenting problems was 44% and was 31% in predicting requests for service. The addition of the mental health variables substantially increased the accounted for variance in both measures of service need, raising the percentage of variance accounted for by 11% in the prediction of presenting problems and 14% in predicting requests for service.

The accounted for variance was raised to 79% in presenting problems and to 72% in requests for service by the addition of the enabling variable categories to the need variable categories. Of the enabling variable categories, the personal security variables provided the greatest percentage of incremental accounted for variance in the prediction of both service need variables. The addition of the predisposing variables increased the accounted for variance in

presenting problems to 86%, and raised the accounted for variance in requests for service to 82 percent.

Predictors of Service Utilization

Based on the findings from the categorical multiple regression analysis, the variable categories of social resources and personal resources were found to be the best predictors of service hours received (18% and 20% variance, respectively). respectively). The need variable categories, added incrementally one at a time accounted for 32% variance in the prediction of service utilization in the hierarchical multiple regression analysis.

Each of the enabling variable categories added substantially to the amount of accounted for variance. The addition of the social resources variable category to the regression equation raised the accounted for variance to 48%. The accounted for variance in service hours was raised to 73% by the addition of personal security variables. The inclusion of all variable categories in a hierchical multiple regression analysis accounted for 82% variance in the prediction of service utilization by CIC clients.

Predictors of Service Outcomes

Service outcomes were measured by the number of service objectives that had been accomplished during a period of three or more months. Of the need variables, the physical health variable category was the best predictor of service outcomes, accounting for 22% variance.

The enabling variable categories were also highly predictive of service outcomes. Personal security variables accounted for 19% variance, social resources accounted for 18% variance and personal resources accounted for 17% variance in the prediction of service outcomes.

Results of the hierarchical multiple regression showed that the functional competence variable category yielded only 9% accounted for variance in service outcomes. The addition of the physical health variable categoryes raised the accounted for variance in service outcomes by 21%. The three need variable categories, added singly to the regression equation, accounted for 41% variance in predicting service outcomes. Seventy-six percent variance was accounted for with the addition of the three enabling variable categories. Personal security variables raised the variance accounted for by 13%. When all variable categories were included in the regression analysis, 81% variance was accounted for in the prediction of service outcomes.

Summary and Implications

These data clearly indicate the multidimensional vulnerability of chronically impaired adults and aged consumers of home based long term care services. Even though there are some differences found among the three groups on the predisposing, need and enabling variables , it is very clear from these data that all those who utilize the services of the Chronic Illness Center are indeed in need of the services they use. The multidimensional vulnerability of these service consumers is also reflected in the configuration of the need and enabling variables, which predict service need, service use and

service outcome. These data clearly show that among chronically impaired adults and aged not only are impairments on physical health, mental health and functional limitations important determining factors, but the enabling variables of social resources, personal resources, and personal security also have an important role in the prediction of service need, service utilization and service outcomes. These data have, therefore, definite implications for a service philosophy, and for the organization of service delivery in home based long term care services.

The multidimensional vulnerability which characterizes the service consumers requires an especially careful assessment process if needs are to be determined and placed in the proper perspective. The staff of the Chronic Illness Center considers assessment as the key to intervention and this process is at the heart of the agency's service offering. The research findings support the importance of a careful evaluation of the client's total situation.

The focus of the assessment is on the level of functioning, particularly with respect to activities of daily living. Special attention is given to the client's ability to manage his or her essential food, shelter and warmth needs as well as personal hygiene and grooming. The extent of cognitive and mental status impairment as well as coping ability, affective functioning and the quality of interpersonal relationships are also evaluated.

One must not underestimate the potential of emotional impact upon the chronically impaired person whose daily life may contain many reminders of his diminishing control. Chronic anxiety and depression

are common. The philosophy of approach to serving this population must include significant mental health principles which focus on allowing consumers to control as much as posible of their own destiny. Again, the research data imply that service delivery in home based long-term care should contain elements which are directed toward promoting the emotional well-being of the consumer. The wholistic approach to service delivery utilized by the Chronic Illness Center includes the capacity to respond to the emotional needs of its service consumers.

The presence of multiple and complex functional problems and chronic health impairments among the target population - problems which are further aggravated by social and economic disadvantages, reinforces the need to utilize a service approach based in a multidisciplinary structure. The organizational structure of the Chronic Illness Center with the multidisciplinary team as its unit seems a viable model for service delivery. The research data provide implications for the possible addition of other disciplines and orientations as well. The adaptability of the core team could be enhanced by the availability of a physical therapist, an occupational therapist, a nutritionist and possibly other professionals. However, the essence of the model is the provision of a base from which a package of comprehensive services can be delivered.

The research findings confirm that the philosophy and organization of service delivery of the Chronic Illness Center offer a viable model for the provision fo home based long-term care services.

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Table 1

Demographic Characteristics

Variables	CIC	PSOP	Caregiver	Total
Age				
Under 30	6.0	0.0	2.8	2.0
30 to 44	8.0	5.4	7.9	6.5
45 to 59	15.9	13.5	3.0	17.0
60 to 74	37.3	35.1	42.1	39.5
75 and older	33.3	45.9	15.8	37.0
Sex				
Male	23.5	24.3	29.0	25.0
Female	76.5	75.7	71.0	75.0
Race				
White	84.3	52.3	66.0	63.0
Black	11.8	46.8	31.6	35.0
Other	4.0	0.9	2.4	2.0
Marital Status				
Never Married	3.9	13.5	5.3	9.5
Married	47.1	31.5	86.8	46.0
Widowed	35.3	42.3	7.9	34.0
Divorced	13.7	9.0	0.0	8.5
Separated	0.0	3.6	0.0	2.0

Table 1 continued

Number of Persons Live With				
No one	29.4	39.6	0.0	29.5
One	41.2	42.3	63.2	46.0
Two or more	29.4	18.0	36.8	24.5
Years of Education				
Grades 1 - 8	15.7	38.7	23.7	30.0
Grades 9 - 11	25.5	15.3	21.0	19.0
High School	41.2	31.5	39.5	35.5
Some College	9.8	5.4	2.6	6.0
College	3.9	2.7	5.3	3.5
Other/Unknown	3.9	6.3	7.9	6.0
Occupational Background				
Professional	5.9	3.6	10.5	5.5
Managerial	2.0	2.7	0.0	2.0
Semi-Professional	2.0	3.6	0.0	2.5
Skilled/Technical	11.8	6.3	10.5	8.5
Sales/Clerical	9.8	9.0	15.8	10.5
Semi-skilled	7.8	9.0	10.5	9.0
Unskilled	17.6	33.3	26.3	28.0
Homemaker	35.3	23.4	23.7	26.5
Other/Unknown	7.8	9.0	2.6	7.5

Table 2

Predictors of Service Need, Service Use and Service Outcomes

Categorical Multiple Regression Analyses

	Presenting Problems R^2	Service Requests R^2	Service Hours R^2	Service Outcomes R^2
Functional Limitations	0.35	0.15	0.16	0.09
Physical Health	0.33	0.20	0.13	0.22
Mental Health	0.26	0.21	0.08	0.15
Social Resources	0.27	0.13	0.18	0.18
Personal Resources	0.26	0.18	0.20	0.17
Personal Security	0.28	0.28	0.12	0.19
Predisposing	0.11	0.11	0.07	0.16

N=200

Table 3

Predictors of Service Need, Service Utilization and Service Outcomes: Hierarchical Multiple Regression Analyses

Variable Categories	Presenting Problems R^2	Service Requests R^2	Service Hours R^2	Service Outcomes R^2
Functional Limitations	0.35	0.15	0.16	0.09
Functional Limitations & Physical Health	0.44	0.31	0.25	0.30
Functional Limitations Physical & Mental Health	0.55	0.45	0.32	0.41
Health Variables & Social Resources	0.64	0.54	0.48	0.53
Health Variables Social & Personal Resources	0.68	0.61	0.59	0.63
Health Variables & Enabling Variables	0.79	0.72	0.73	0.76
Health Variables Enabling Variables & Predisposing	0.86	0.82	0.82	0.81

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